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## (54) FURNITURE CONNECTOR

(71) We, JULIUS BLUM GESELLSCHAFT m.b.H., an Austrian Company, of Im Städtle 498, 6973 Höchst, Austria, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to a furniture connector with a cylindrical dowel casing adapted to be fitted into a cylindrical bore of a furniture element, and a dowel pin insertable into another furniture element and securable in the dowel casing with its axis offset from that of the dowel casing, with clamping means rotatably mounted therein.

Furniture connectors of this kind are preferably used on a large scale to form connections between two walls of a cupboard which connections may be loosened if desired. Accordingly, the dowel casing is fitted into one wall of the cupboard (in most cases on the border of a flat side thereof), while the dowel pin is mounted in the dowel casing on a second wall of the cupboard and eccentrically with respect to the dowel casing.

An arrangement of this kind is required because the furniture elements to be interconnected should form a butt-joint. However, a central arrangement of the dowel pin within the dowel casing would result in the dowel casing protruding all over so that the respective furniture wall would inevitably protrude, too.

Thus the furniture connectors cited above require a particularly accurate alignment of the dowel casing with respect to the holding fixture of the pin, which fixture is required to be alignable with the respective dowel pin of the other furniture element.

An alignment of this kind is not achieved automatically since the dowel casings of necessity are of cylindrical shape to fit the dowel holes provided in the furniture elements. Thus the problem cited above brought on the necessity of constant survey of the insertion of the dowel casing, which control is to be performed by the operation personnel. With the hitherto known furniture connectors of the type above described insertion of the dowel cas-

ings cannot be carried out automatically, unless expensive additional means are used.

Furthermore, for furniture hinges, dowel casings are used which are provided with at least one projection protruding from a side thereof and are adapted to be fitted into a recess of the same shape provided in the wall of the dowel hole. This projection indeed provides for secure and accurate adjustment of the dowel casing, however, a complicated sequence of operations is required to correctly machine the recess.

It is therefore an object of the present invention to create a furniture connector having a rotatable dowel casing which is adapted to be adjusted to the respective position of the dowel pin and to be inserted into the corresponding rotating dowel bore, thereby enabling automatic insertion of the dowel casings in their respective bores.

The invention accordingly provides a furniture connector having a cylindrical dowel casing adapted to be fitted into a cylindrical bore of a furniture element, and a dowel pin insertable into another furniture element and securable in the dowel casing with its axis offset from that of the dowel casing by clamping means rotatably mounted in the casing, and having at least one guide means forming a guide surface extending in the direction of insertion of the casing in the bore or normally thereof for engagement with a guide tool to enable the automatic insertion of the dowel casing in the bore, the/or each guide surface not protruding beyond the cylindrical periphery of the casing.

The guide means preferably is provided as one or more grooves in the surface of the dowel casing.

In a preferred embodiment the dowel casing on the outwardly facing side thereof is provided with at least one groove.

A further preferred embodiment of the invention provides for two grooves extending in parallel to each other. It is suitable to arrange the groove or the grooves on the outwardly facing side closer to the dowel pin.

According to a further embodiment of the invention the guides are provided as guide edges formed laterally in peripheral direc-

tion of the casing, which edges according to a specific arrangement form a square end projecting from the outwardly facing side of the dowel casing.

5 Various embodiments of the invention are hereinafter described in detail with reference to the Figures of the accompanying drawings, in which:—

10 Figure 1 is a section of an edge joint connecting two furniture elements by means of the furniture connector according to the invention, and

15 Figures 2 to 5 are each sectional or top views, respectively, of modifications of dowel casings according to the invention.

As illustrated in Figure 1, a dowel casing 1 is mounted in a bore 2 provided on the border of the flat side of a furniture wall 3. A dowel pin 4 is fitted into the edge of an abutting furniture wall 5. In the assembled condition dowel pin 4 is received in an eccentrically positioned socket in the dowel casing 1 and clamping means 6 used to engage and clamp a head of the pin 4 to retain it in the socket.

25 In order to secure the dowel casing 1 and the dowel pin 4 in the furniture elements 2 and 5 respectively, the dowel casing 1 and the dowel pin 4 are each provided with clamping ribs 7 on their periphery, as shown.

30 When dowel casing 1 is inserted in the bore 2 in the furniture wall 3 it is necessary to check that the aperture 8 in the casing 1 for receiving the dowel pin 4 is in alignment with the position the dowel pin 4 occupies when the joint is assembled. Slightest mispositioning of dowel casing 1 would prevent connection of the two furniture elements.

40 In order to facilitate alignment the dowel casing, according to the present invention, is provided, for instance, with guide grooves 9 or guide edges 10.

45 As illustrated in Figure 2 the guide grooves 9 may extend laterally of the direction of insertion of the dowel casing. The embodiment according to Figure 2 provides for two guide grooves.

50 Figure 3 shows a modification of the invention with a guide groove 9 arranged on the outwardly facing side of the casing 1 which, when the joint is assembled, is nearer the dowel pin 4.

55 Figure 4 shows an example analogous to that represented in Figure 3 in which, however, two guide grooves 9 are provided.

The dowel casings 1 are adapted to be automatically supplied to the bores, for instance, by a machine having guide rails in which engage guide springs or guide ledges

alignable with the guide grooves 9, thus enabling alignment of the dowel casing in any desired position before and during the assembly.

60 In the embodiment shown in Figure 5 guide grooves 9 are replaced by guide edges 10 which extend at right angles to each other to form a square end 11 projecting from the outwardly facing side of the dowel casing when the joint is assembled.

70 According to this embodiment the dowel casing may be supplied for insertion by staggering or rotating its position in the machine, through 90°, e.g. dowel casings 1 may be fitted to the four edges of a furniture element while the machine for inserting the dowels constantly occupies the same alignment.

80 It will be seen that the result could be achieved, for instance, with guide grooves extending normally of one another.

#### WHAT WE CLAIM IS:—

1. A furniture connector having a cylindrical dowel casing adapted to be fitted into a cylindrical bore of a furniture element, and a dowel pin insertable into another furniture element and securable in the dowel casing with its axis offset from that of the dowel casing by clamping means rotatably mounted in the casing, and having at least one guide means forming a guide surface extending in the direction of insertion of the casing in the bore or normally thereof for engagement with a guide tool to enable the automatic insertion of the dowel casing in the bore, the/or each guide surface not protruding beyond the cylindrical periphery of the casing.

2. A furniture connector as claimed in Claim 1, characterised in that the said guide means is provided as one or more grooves in the surface of the dowel casing.

3. A furniture connector as claimed in Claim 2, characterised in that the said groove or grooves are provided on the outwardly facing side of the dowel casing.

4. A furniture connector as claimed in Claim 3 characterised in that the said groove or grooves are arranged on the outwardly facing side nearer to the dowel pin.

5. A furniture connector as claimed in Claim 1, characterised in that the said guide means are provided as guide edges formed laterally of the peripheral direction of the dowel casing.

6. A furniture connector as claimed in Claim 5, characterised in that the said guide edges form a square end projecting from the

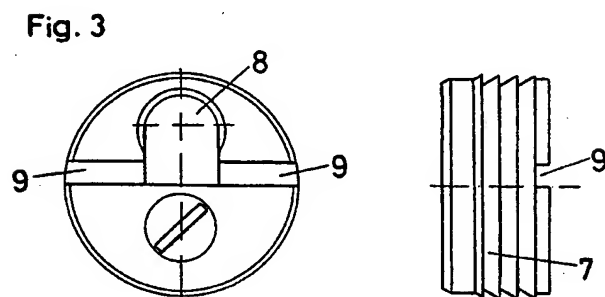
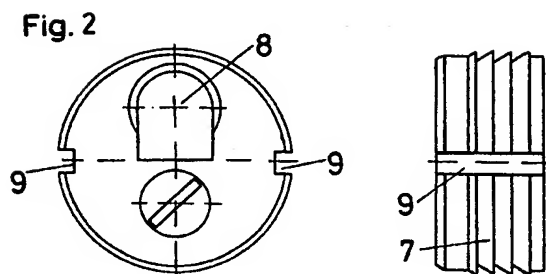
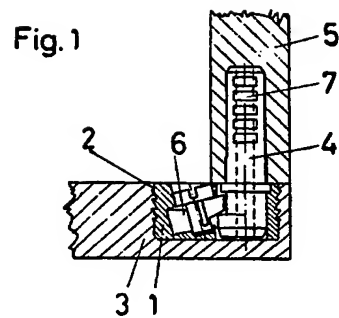
outwardly facing side of the dowel casing.

7. A furniture connector as claimed in any one of the preceding claims, wherein the dowel casing and dowel pin are each formed with peripheral clamping ribs.
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8. A furniture connector substantially as claimed hereinbefore with reference to the accompanying drawings.

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COMPLETE SPECIFICATION

2 SHEETS

*This drawing is a reproduction of  
the Original on a reduced scale  
Sheet 2*

Fig. 4

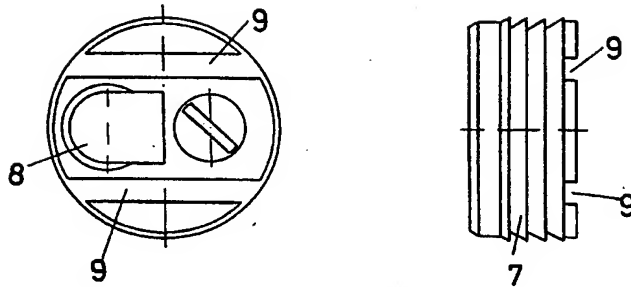


Fig. 5

